

**Auran Survey**  
**Back Bay National Wildlife Refuge, Virginia Beach, VA:**  
**With Recommendations for Future Surveys**

**Final Report**  
**Permit Number 20-0099**

Prepared for:  
U.S. Department of the Interior  
Fish and Wildlife Service  
Back Bay National Wildlife Refuge  
Virginia Beach, Virginia

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20 September 2000

*SURVEY DATA (edit.)  
RE-ENTERED 11/31/2002  
by J. Gallegos.  
(previous entries  
don't show.)*

## **Introduction:**

Amphibians represent an important component of the Back Bay Ecosystem. Frogs and toads are the most commonly encountered amphibians on the refuge. Anurans are the most abundant and diverse group of amphibians including about 3,840 species distributed throughout the world. They occur in almost every terrestrial and freshwater habitat and may be aquatic, terrestrial, and/or arboreal. Some anurans are diurnal but most are nocturnal. The adults are usually quite dispersed because they are predators and compete for resources. However, at breeding time, hundreds of individuals from many different species may congregate for courtship and reproduction. Breeding may be explosive, synchronized over one or a few days, or prolonged over a few weeks or months. Most anurans have aquatic eggs that undergo external fertilization, and hatch into free-swimming larvae. These "tadpoles" are voracious feeders and may stay in this form for up to three years. Many must change from herbivory to carnivory during metamorphosis, and some tadpoles may become carnivorous while still in the larval stage. After metamorphosis they emerge from the water as small adults and assume a terrestrial life. In many cases the anurans represent a large portion of the biomass of any habitat where they exist.

Amphibians have moist permeable skin that allows water and other molecules to pass through it into their bodies. Therefore, they are very sensitive to changes in their environment. Their skin is so permeable that they use it for breathing and drinking. When they are exposed to unhealthy environmental conditions such as pollution, or over exposure to UV light their populations may decline. Because amphibians are sensitive to environmental changes they play a unique and important role as "indicator" species. Herpetologists have been documenting declines in amphibian populations for over a decade, and this may indicate a large environmental problem. Because little is known about the current populations of different species it is hard to gauge if declines are occurring, and why.

To establish baseline data and to monitor change over time to the Back Bay National Wildlife Refuge's (BBNWR) anuran populations the U.S. Fish and Wildlife Service, Region 5 (FWS) is currently conducting frog and toad (anuran) calling surveys. The program is using standardized protocols. These protocols are similar those of the North American Amphibian Monitoring Program (NAAMP) which has established protocols for all of North America. Surveys will provide a data set that will allow BBNWR to detect changes to anuran (frog and toad) populations.

The Wildlife Diversity Division (WDD) of the Virginia Department of Game and Inland Fisheries (DGIF) under agreement with the BBNWR conducted anuran calling surveys during the 2000 calling season. Using protocols established by the FWS a route consisting of 13 stops was laid out encompassing the BBNWR impoundments, located south of the town of Sandbridge in the City of Virginia Beach.

## **Virginia's Native Anurans:**

Virginia is home to 25 species of anurans belonging to five families and seven genera. Each family is different from the others in habitat and behavior. However, they all have external fertilization, aquatic larvae, and no parental care.

## **Family: *Hylidae***

Hylidae is a large family consisting of about 635 species. Virginia is home to three genera of frogs found in this family: chorus frogs (*Pseudacris*) cricket frogs (*Acris*), and treefrogs (*Hyla*). These frogs are usually slender with long legs, relatively small, and are sexually dimorphic--the males are smaller than the females.

**Genus: *Pseudacris* (Chorus frogs):** This genus is only found in North America, and it ranges in the east from the gulf of Mexico to New York and Southern Ontario, and in the west from Arizona to the Arctic Circle. Chorus frogs typically respond to the first warm rains of spring, and once stimulated they sing day or night, near shallow water. Although these frogs may call in the open they usually stay hidden in vegetation. Frogs in this genus have slightly webbed feet with relatively small toe disks and climb very little. Most species have a light line just below a darker line that begins on the upper lip and travels through the eye and extends the length of their body. Most have a single round vocal patch that is typically grey or brown when uninflated.

**Genus: *Acris* (Cricket Frogs):** The species in the genus *Acris* range from southeastern New York, the southern peninsula of Michigan, and southeastern South Dakota south to the tip of Florida and Northeastern Mexico. They are typically non-climbing and have less webbing on their toes and smaller toe pads than the other members of the family *Hylidae*. Although cricket frogs look similar to chorus frogs their skin is more warty. Their color patterns may vary considerably and exhibit combinations of black, yellow, green, brown, red, and orange. They usually have a V shaped mark between the eyes and a dark stripe on the back of each thigh. Males have a single vocal sac, and may call from permanent or temporary ponds as well as slow streams. They typically prefer to hide in emergent or moist vegetation that is exposed to the sun for at least part of the day.

**Genus: *Hyla* (Treefrogs):** This genus has a very large range that is almost as extensive as the family *Hylidae*. They are agile climbers with large adhesive toe pads and extensively webbed feet. They have very long legs, fingers and toes that aid in climbing. However, few ascend very high in treetops where the wind could dry their moist skin. Thus, treefrogs are more commonly found in bushy thickets, swamp vegetation, and moist woodlands. Color changes are typical for this genus and many species may change from grey to green to brown and be patterned or plain depending on degrees of temperature, light, moisture, stress, or activity level. Some treefrogs have diagnostic color patterns on the concealed surfaces of their legs that aid in identification. They have a single vocal sac on the floor of their mouth.

#### **Family *Bufo*idae:**

##### **Genus: *Bufo* (True Toads):**

Although it is easy to distinguish a toad from a frog, in most cases, true toads are hard to tell apart from one another. Typically morphological characteristics such as size of parotoid glands, and cranial ridges, patterns, color differences, and number of warts have to be compared before one species can be distinguished from another. In addition, some species hybridize when they come into contact with one another in the wild. This behavior is magnified when natural habitats are destroyed and species that have been geographically isolated and prevented from hybridizing begin to coexist. Hybridization confuses identification and weakens gene pools and possibly health. Toads typically have dry warty skin and hop as opposed to frogs that have smooth moist skin and jump or climb. Toads have parotoid glands that secrete irritating and sometimes toxic fluid. In contrast to old wives tails, they cannot give one warts. In the northern part of their range they may breed at the same time each year, depending on weather. However, southern populations may breed throughout the year. Males develop dark nuptial pads on their thumbs and inner fingers when actively breeding. Their vocal sac is usually round, but in some species they are sausage shaped. Males typically have darker throats than females, but females are usually larger than males. Individual toads within a species may vary in color a great deal and individual toads are able to change color depending on weather conditions and activity level. Small toads are almost impossible to identify because they have not completely developed the morphological characters that are diagnostic. Toads in the family *Bufo* are distributed almost worldwide. Humans have introduced some species, to areas where they have never existed before. In the absence of predators their populations have exploded and have become out of control. The introduction of non-native animals has been responsible for many environmental problems.

### **Family *Ranidae*:**

#### **Genus: *Rana* (True Frogs):**

Frogs in the family *Ranidae* are distributed globally. The only genus within this family that exists in North America is *Rana*. They have long legs, a small waist, smooth moist skin, unwebbed front feet, and back feet that are extensively webbed for swimming. The presence or absence of a dorsolateral ridge (raised folds that travel the length of the body) is one character that helps distinguish similar looking species. Some species have paired vocal sacs while others have only one. They may be positioned at the sides or under the throat. Females are known to be vocal and when captured they can bellow a fright scream in defense. During the breeding season the male's forearms become swollen and their thumbs are enlarged. These characteristics may help the male grasp the female during amplexus.

### **Family *Microhylidae*:**

#### **Genus: *Gastrophryne* (Narrowmouth Toads):**

Narrowmouth frogs are distributed throughout Northern, Central, and South America, Africa, Asia, and Australia. They are plump, short bodied anurans that have short legs, pointed heads, and a fold of skin that lies across the back of their head. This fold maybe moved forward to keep biting insects away from their eyes. They are nocturnal and are especially active on warm damp nights. They feed on small insects such as small beetles, termites and ants.

### **Family *Pelobatidae*:**

#### **Genus: *Scaphiopus* (Spadefoot Toads):**

Spadefoot toads are distributed throughout the United States from southwestern Canada to southern Mexico. *Scaphiopus* is the only genus in the family *Pelobatidae* that occurs in the New World. They are referred to as spadefoot toads because they have a single spade on their back legs that allows them to burrow down into sandy or loose soil. Spadefoot toads are different from toads in the genus *Bufo* in many ways: their skin is smoother, they do not have well developed parotoid glands, and their pupils are vertical rather than horizontal. Spadefoots are well adapted to dry conditions and may stay underground for months at a time. They appear suddenly in the summer after heavy warm rains to breed in temporary pools created by the rains. The larvae develop and metamorphose very quickly so that they may escape desiccation as the pools dry.

### **Discussion and Results:**

The protocols directed that no more than 13 stops be established for each route. Stops had to be a minimum of a half-mile apart to reduce the possibility of recording calls heard earlier. Procedures and protocols relating to this survey can be found in BBNWR's Wildlife Inventory/Monitoring Procedures (working draft). The enclosed map shows approximately where stops were established and Appendix 1 lists the latitude and longitude of each stop. The lat/longs were located using the Global Positioning System (GPS). The program consists of the route being surveyed three (3) times during the year. The periods for conducting each survey are broken down by date and air temperature as follows:

|          |             |                        |        |
|----------|-------------|------------------------|--------|
| Period 1 | Late winter | February 15 – April 15 | 40° F. |
| Period 2 | Mid-spring  | April 15 – June 1      | 55° F. |
| Period 3 | Mid-summer  | June 1 – July 15       | 65° F. |

A summary of the parameters under which each period was surveyed is:

|                    |                  |                     |                       |
|--------------------|------------------|---------------------|-----------------------|
| <b>DATE</b>        | 11-Apr-00        | 8-May-00            | 5-Jun-00              |
| <b>TEMP. RANGE</b> | 65.9 to 68.0 F.  | 75.9 to 78.5 F.     | 70.6 - 72.8 F.        |
| <b>WIND</b>        | B3 - B6          | B2 - B3             | B0 - B2               |
| <b>SKY CODE</b>    | 2                | 0                   | 2 - 4                 |
| <b>PRECIP.</b>     | rain w/in 48 hrs | No rain w/in 72 hrs | drizzle during survey |
| <b>TIME START</b>  | 2015 hrs         | 2030 hrs            | 2100 hrs              |
| <b>TIME END</b>    | 2138 hrs         | 2207 hrs            | 2253 hrs              |
| <b>DURATION</b>    | 1 hr. 23 min.    | 1 hr. 37 min.       | 1 hr. 53 min.         |

Data was recorded, in the field, using the **Anuran Call Count Survey/Survey Period Data Sheet** (Appendix 2). The **Anuran Call Count Survey/Survey Point Field Map** (Appendix 3) was also used during the first survey period in April. Locating calling groups, using the indices, on the form (appendix 3) was very difficult since many groups overlapped. Instructions on how to use both the forms are presented in BBNWR's Wildlife Inventory/Monitoring Procedure (working draft). The Alpha Codes used on the field sheets are presented in Appendix 4.

Eight species of anurans (3 families and 5 genera) were recorded during the 2000 survey season. Appendix 5 is list of species, range of calling indices, number of nights heard and which survey periods the species was recorded on. Only the Southern Leopard Frog was heard during all three surveys. The principal investigator Donald J. Schwab, Wildlife Diversity Biologist of the WDD, DGIF, conducted all surveys. Eric Dunn, BBNWR Intern assisted during the third survey period in June.

Though, not part of the anuran call surveys, night calling birds were recorded. The following is a list of those bird species heard:

### NOCTURNAL BIRDS RECORDED

| SPECIES             | # HEARD | DATE        | STOPS HEARD FROM |
|---------------------|---------|-------------|------------------|
| Great Horned Owl    | 3       | 8 May 2000  | 2, 4, & 6        |
| Barred Owl          | 1       | 8 May 2000  | 8                |
| Eastern Screech Owl | 1       | 5 June 2000 | 7                |
| Whip-poor-will      | 7       | 8 May 2000  | 3, 4, 6, 9, & 10 |
| Chuck's-will-widow  | 3       | 8 May 2000  | 2, 4, & 5        |

### Recommendations for Future Surveys/Counts:

The protocols currently used by the FWS parallel in some respects the methods used by the U.S. Geological Survey's (USGS) North American Monitoring Program (NAAMP). The FWS surveys recommend that no more than 13 stops be established and the 2000 season survey consisted of 13 stops. The NAAMP protocols call for 10 stops. It would be of benefit to all concerned parties that BBNWR reduce the number of stops to 10 on all future calling route surveys. Having all surveys within North America being conducted under the same protocols will allow for better comparisons of routes across the country. The NAAMP will be coming out with new protocols for the 2001 season. If the BBNWR does concur with this

recommendation the following stops could be removed from the impoundment survey area: stop 5, stop 11 and stop 13 (MAP 1).

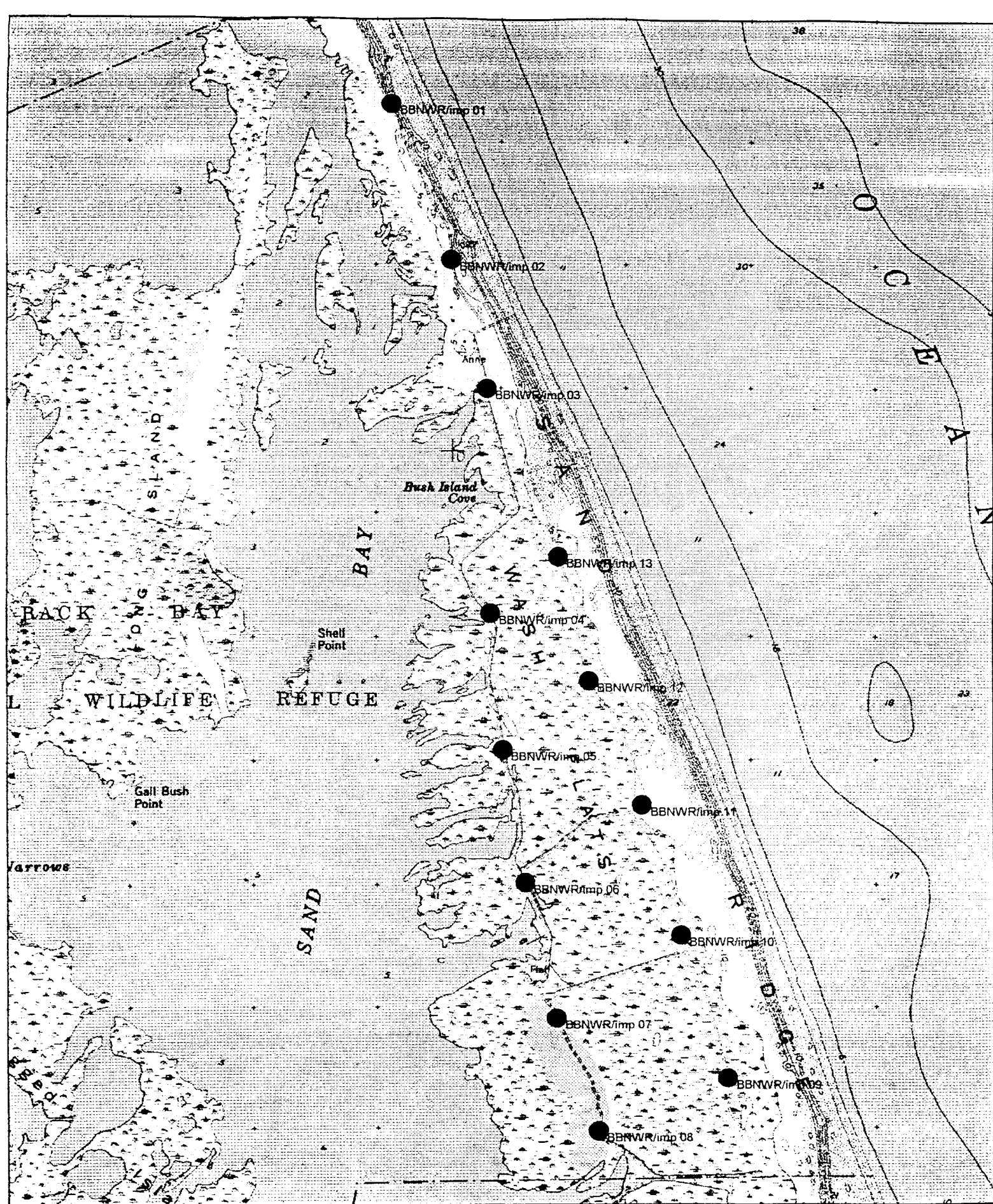
The two field forms (appendices 2 and 3) are redundant and time consuming. Eliminating the Survey Point Field Map (appendix 3) reduces the time needed to conduct the route; the number of forms carried in the field, and would allow the surveyor to focus on the number of species and the indices for calling levels. The Survey Point Field Map would be beneficial if one were looking at territories over the landscape. The purpose of these surveys is to hopefully detect change in calling rates over time from each stop. As mentioned in the paragraph above the NAAMP will be coming out with recommendations on what data should be required on forms for the 2001 season, as well as what data would be nice to have, but not required.

It is recommended that BBNWR adopt the new NAAMP protocols for future surveys on the refuge. Conducting all anuran calling survey under the same protocols will permit comparison of all anuran routes in Virginia and across North America.

If the above recommendations are implemented, future surveys should be:

- easier to conduct by volunteers
- make BBNWR routes compatible with NAAMP surveys

**MAP 1.**



Name: NORTH BAY  
 Date: 6/12/100  
 Scale: 1 inch equals 2222 feet

Location: 036° 39' 31.0" N 075° 54' 50.3" W  
 Caption: BBWR Anuran Route - Impoundments. April-June, 2000.  
 Conducted by Donald J. Schwab (VDGIF)



## **APPENDICES**

- 1. Latitudes and Longitudes for stops**
- 2. Survey Period Data Sheet**
- 3. Survey Point Field Map**
- 4. Anuran Species Alpha Codes**
- 5. Anuran Species Recorded**

**Back Bay National Wildlife Refuge  
Anuran Survey**

**Latitudes and Longitudes  
of Stops 1 through 13 – Impoundment Area**

|          |                                |
|----------|--------------------------------|
| Stop 1:  | 036° 41' 02" N, 075° 55' 13" W |
| Stop 2:  | 036° 40' 34" N, 075° 55' 00" W |
| Stop 3:  | 036° 40' 11" N, 075° 54' 52" W |
| Stop 4:  | 036° 39' 31" N, 075° 54' 52" W |
| Stop 5:  | 036° 39' 07" N, 075° 54' 49" W |
| Stop 6:  | 036° 38' 43" N, 075° 54' 44" W |
| Stop 7:  | 036° 38' 19" N, 075° 54' 38" W |
| Stop 8:  | 036° 37' 58" N, 075° 54' 28" W |
| Stop 9:  | 036° 38' 08" N, 075° 54' 00" W |
| Stop 10: | 036° 38' 34" N, 075° 54' 10" W |
| Stop 11: | 036° 38' 57" N, 075° 54' 19" W |
| Stop 12: | 036° 39' 19" N, 075° 54' 30" W |
| Stop 13: | 036° 39' 41" N, 075° 54' 37" W |



## Anuran Call Count Survey Survey Point Field Map

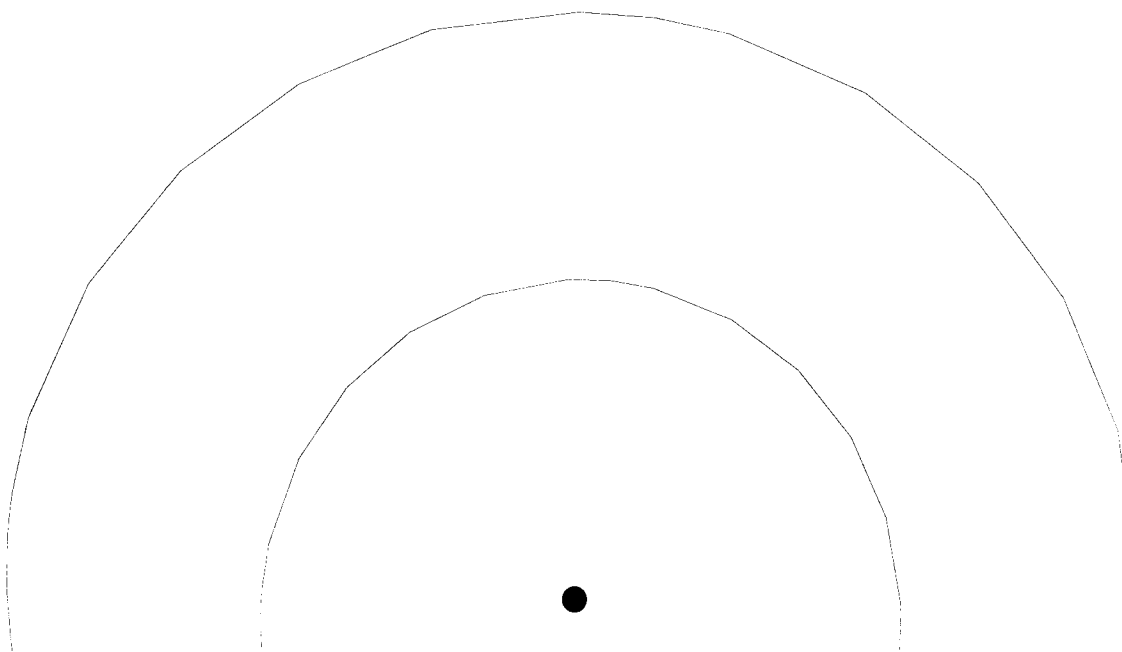
Date: \_\_\_\_\_ Survey Period: 1 2 3 4 Route: \_\_\_\_\_ Surveyor: \_\_\_\_\_

Survey Point Number: \_\_\_\_\_

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  |      |           |          |            |               |
| Finish |      |           |          |            |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically.  
1 - Light air movement, smoke drifts.  
2 - Wind felt on face, leaves rustle.  
3 - Gentle breeze, leaves and small twigs in motion.

\*4 - Small branches move, raises dust and loose paper.  
\*5 - Small trees in leaf begin to sway, crested wavelets.  
\*6 - Large branches in motion.  
\* = Unacceptable wind strengths for survey.

## Anuran Species Alpha Codes

| Species                  | Scientific Name                         | Alpha Code |
|--------------------------|---|------------|
| Eastern Spadefoot        | <i>Scaphiopus holbrookii holbrookii</i> | EASP       |
| Eastern Narrowmouth Toad | <i>Gastrophryne carolinensis</i>        | ENTO       |
| American Toad            | <i>Bufo americanus</i>                  | AMTO       |
| Southern Toad            | <i>Bufo terrestris</i>                  | SOTO       |
| Fowler's Toad            | <i>Bufo woodhousii fowleri</i>          | FOTO       |
| Oak Toad                 | <i>Bufo quercicus</i>                   | OATO       |
| Green Treefrog           | <i>Hyla cinera</i>                      | GRET       |
| Pine Woods Treefrog      | <i>Hyla femoralis</i>                   | PWTR       |
| Barking Treefrog         | <i>Hyla gratiosa</i>                    | BATR       |
| Squirrel Treefrog        | <i>Hyla squirella</i>                   | SQTR       |
| Gray Treefrog            | <i>Hyla versicolor</i>                  | GRAT       |
| Cope's Gray Treefrog     | <i>Hyla chrysocelis</i>                 | CGTR       |
| Pine Barrens Treefrog    | <i>Hyla andersonii</i>                  | PBTR       |
| Upland Chorus Frog       | <i>Psuedacris triseriata</i>            | UCFR       |
| New Jersey Chorus Frog   | <i>Psuedacris triseriata feriarum</i>   | NJCF       |
| Western Chorus Frog      | <i>Pseudacris triseriata triseriata</i> | WCFR       |
| Northern Spring Peeper   | <i>Pseudacris crucifer</i>              | NSPE       |
| Mountain Chorus Frog     | <i>Pseudacris brachyphona</i>           | MCFR       |
| Brimley's Chorus Frog    | <i>Pseudacris brimleyi</i>              | BCFR       |
| Little Grass Frog        | <i>Pseudacris ocularis</i>              | LGFR       |
| Northern Cricket Frog    | <i>Acris crepitans crepitans</i>        | NCFR       |
| Southern Cricket Frog    | <i>Acris gryllus gryllus</i>            | SCFR       |
| Carpenter Frog           | <i>Rana virgatipes</i>                  | CAFR       |
| Mink Frog                | <i>Rana septentrionalis</i>             | MIFR       |
| Green Frog               | <i>Rana clamitans clamitans</i>         | GRFR       |
| Bullfrog                 | <i>Rana catesbeiana</i>                 | BUFR       |
| Northern Leopard Frog    | <i>Rana pipiens</i>                     | NLFR       |
| Southern Leopard Frog    | <i>Rana sphenoccephala</i>              | SLFR       |
| Pickerel Frog            | <i>Rana palustris</i>                   | PIFR       |

X = high #s of these spp. on Refuge.

## Anuran Species Recorded Back Bay NWR/Impoundments

### Southern Cricket Frog (Coastal Plain Cricket Frog) *Acris gryllus gryllus* (LeConte)

|                                       |                 |
|---------------------------------------|-----------------|
| Data Sheet Code:                      | SCFR            |
| Call Index Range:                     | 1               |
| # of nights recorded, out of three(3) | 1               |
| Survey Periods Recorded               | 3 <sup>rd</sup> |

### Fowler's Toad *Bufo fowleri* Hinckley

|                                       |                 |
|---------------------------------------|-----------------|
| Data Sheet Code:                      | FOTO            |
| Call Index Range:                     | 1-2             |
| # of nights recorded, out of three(3) | 1               |
| Survey Periods Recorded               | 2 <sup>nd</sup> |

### Southern Toad *Bufo terrestris* (Bonnaterre)

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Data Sheet Code:                      | SOTO                              |
| Call Index Range:                     | 1-2                               |
| # of nights recorded, out of three(3) | 2                                 |
| Survey Periods Recorded               | 2 <sup>nd</sup> & 3 <sup>rd</sup> |

### Green Treefrog *Hyla cinerea* (Schneider)

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Data Sheet Code:                      | GRET                              |
| Call Index Range:                     | 2-3                               |
| # of nights recorded, out of three(3) | 2                                 |
| Survey Periods Recorded               | 2 <sup>nd</sup> & 3 <sup>rd</sup> |

### Squirrel Treefrog *Hyla squirella* Bosc

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Data Sheet Code:                      | SQTR                              |
| Call Index Range:                     | 1-2                               |
| # of nights recorded, out of three(3) | 2                                 |
| Survey Periods Recorded               | 2 <sup>nd</sup> & 3 <sup>rd</sup> |

### Northern Spring Peeper *Pseudacris crucifer crucifer* (Wied-Neuwied)

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Data Sheet Code:                      | NSPE                              |
| Call Index Range:                     | 1-2                               |
| # of nights recorded, out of three(3) | 2                                 |
| Survey Periods Recorded               | 1 <sup>st</sup> & 2 <sup>nd</sup> |

### American Bullfrog *Rana catesbiana* Shaw

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Data Sheet Code:                      | BUFR                              |
| Call Index Range:                     | 1-2                               |
| # of nights recorded, out of three(3) | 2                                 |
| Survey Periods Recorded               | 2 <sup>nd</sup> & 3 <sup>rd</sup> |

### Southern Leopard Frog *Rana sphenoccephala* Cope

|                                       |      |
|---------------------------------------|------|
| Data Sheet Code:                      | SLFR |
| Call Index Range:                     | 1-3  |
| # of nights recorded, out of three(3) | 3    |
| Survey Periods Recorded               | all  |

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## Anuran Call Count Survey Survey Period Data Sheet

Ps 10 f 2

Surveyor: D. J. Schwab  
VDGIF

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 2015 | 67.8      | 2        | B3         | 2             |
| Finish | 2138 | 65.9      | 2        | B6         | 2             |

[illegible]

- \* 4 - Small branches move, raises dust and loose paper.
- \* 5 - Small trees in leaf begin to sway, crested wavelets.
- \* 6 - Large branches in motion.
- \* = Unacceptable wind strengths for survey.

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Appendix 9.

Pse2cf2

Surveyor: D. J. Schwab

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  |      |           |          |            |               |
| Finish |      |           |          |            |               |

AS#11 AS#12 AS#13 Point Data

[illegible]

Wind Scale: 0 - Smoke rises vertically.  
1 - Light air movement, smoke drifts.  
2 - Wind felt on face, leaves rustle.  
3 - Gentle breeze, leaves and small twigs in motion  
4 - Small branches move, raises dust and loose paper.  
5 - Small trees in leaf begin to sway, crested wavelets.  
6 - Large branches in motion.  
\* = Unacceptable wind strengths for survey.



Anuran Call Count Survey IMP

WORKING DRAFT

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Appendix 7.

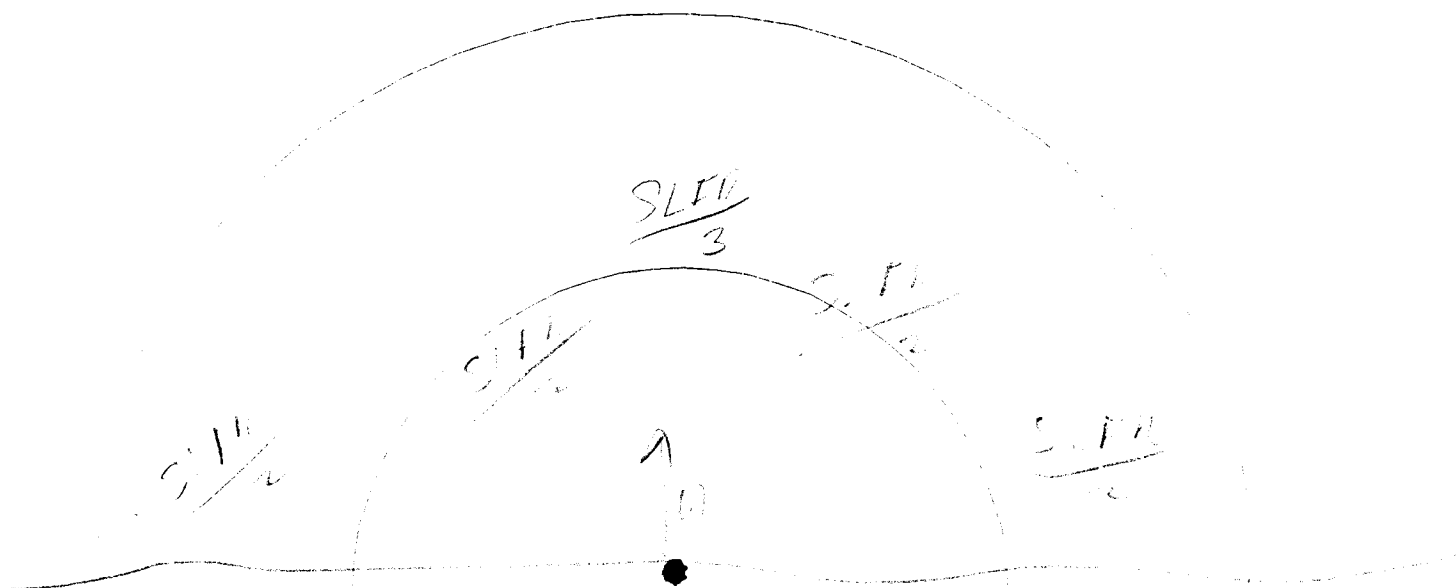
## Anuran Call Count Survey Survey Point Field Map

11 Apr 2000  
 Date: \_\_\_\_\_ Survey Period: 1/2 3 4 Route: Bladell Surveyor: Shannon  
 Survey Point Number: Thiatacy

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 213  | 65.9      | 2        | B6         |               |
| Finish | 213  | 65.9      | 2        | B6         |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts. 5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. 6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

WORKING DRAFT

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

11 Apr 2000

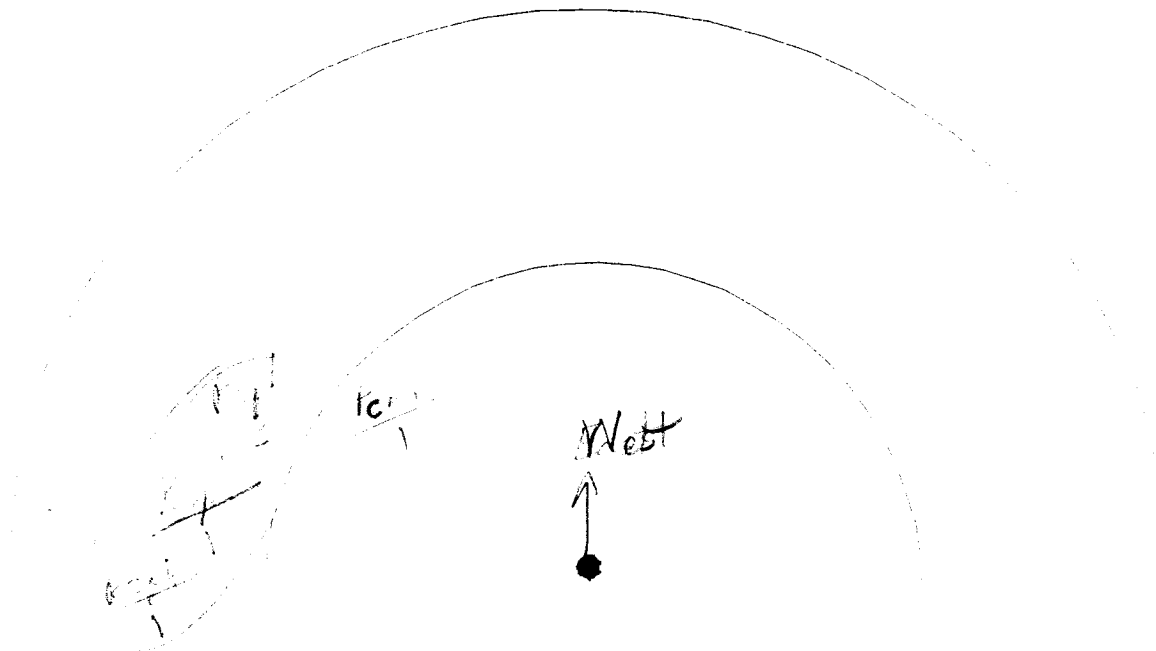
Date: \_\_\_\_\_ Survey Period: ① 2 3 4 Route: BEWOP Surveyor: D.J. Brown*large - due to**10:47 AM*Survey Point Number: ONE

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 2015 | 67.2      | 2        | B3         | w/ w 42 in 2  |
| Finish |      |           |          |            |               |

### Comments:

*Wade for past 2 hrs but to 3-4 consistently*



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts \*5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \*7 - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

WORKING DRAFT

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

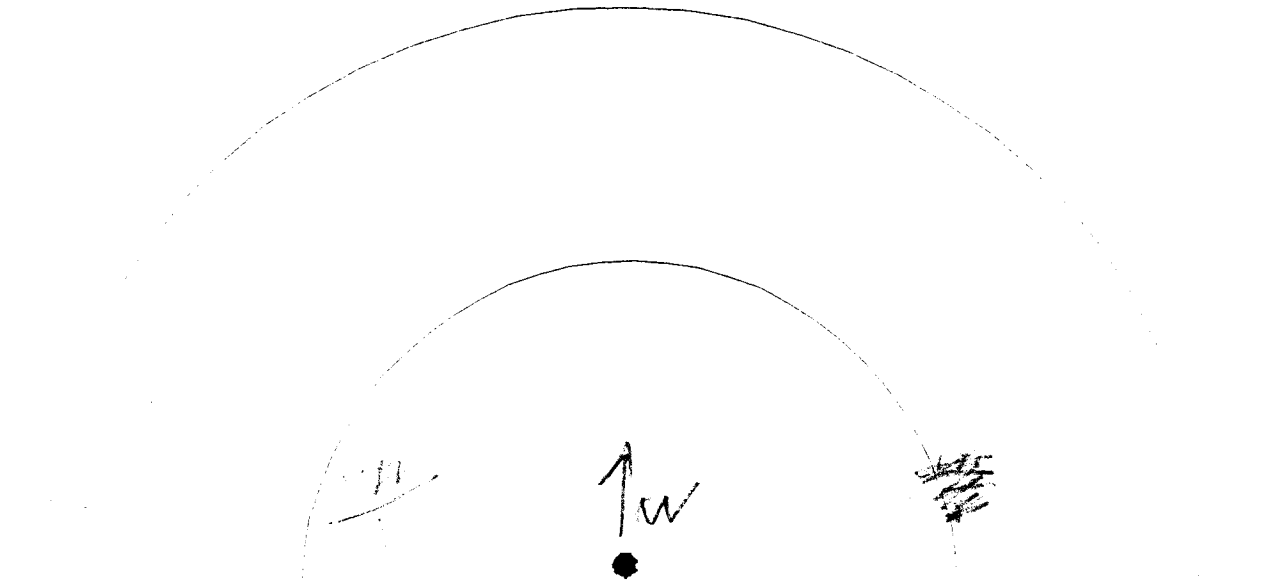
11 Apr 2003  
 Date: \_\_\_\_\_ Survey Period: ① 2 3 4 Route: B. Wet Surveyor: JD

Survey Point Number: Two

### Survey Data

|        | Time                  | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|-----------------------|-----------|----------|------------|---------------|
| Start  | <del>12:30</del> 2:24 | 62.4      | 2        | B4         | 0             |
| Finish |                       |           |          |            |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog. 4 - Drizzle. 5 - Showers.

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts. \*5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

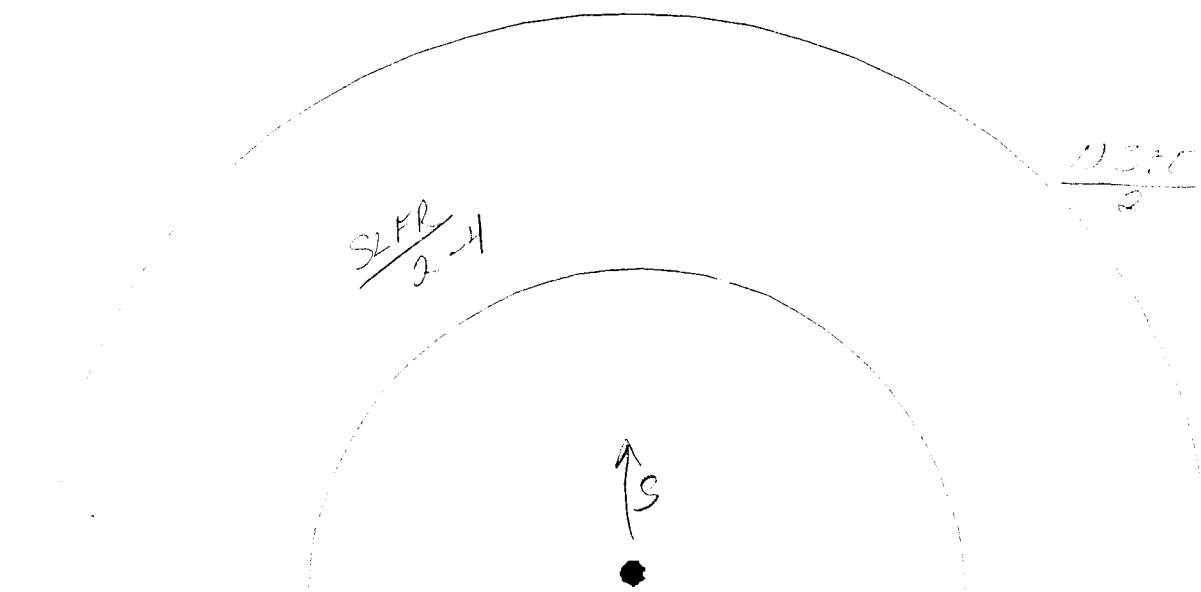
Date: 12 Apr 2002 Survey Period: 1 2 3 4 Route: BBNWR Surveyor: Schwartz  
Imp.

Survey Point Number: 1000

### Survey Data

|        | Time            | Temp (°F)   | Sky Code | Wind Scale   | Precipitation |
|--------|-----------------|-------------|----------|--------------|---------------|
| Start  | <u>08:52.13</u> | <u>66.0</u> | <u>2</u> | <u>B-2-1</u> |               |
| Finish |                 |             |          |              |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog. 4 - Drizzle. 5 - Showers

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
1 - Light air movement, smoke drifts. \*5 - Small trees in leaf begin to sway, crested wavelets.  
2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
3 - Gentle breeze, leaves and small twigs in motion. \*+ - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

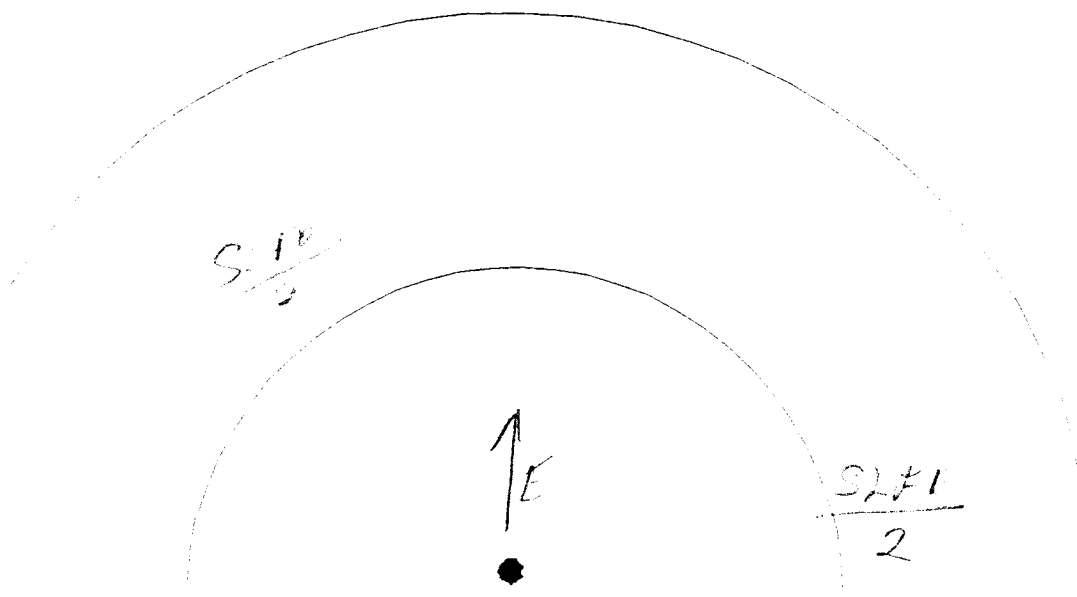
Date: 11 Apr 2000 Survey Period: 1 2 3 4 Route: BBNWK Surveyor: SLH

Survey Point Number: 1

### Survey Data

|        | Time        | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|-------------|-------------|----------|------------|---------------|
| Start  | <u>2037</u> | <u>67.3</u> | <u>5</u> | <u>64</u>  |               |
| Finish |             |             |          |            |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. SLH 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 4 - Small branches move, raises dust and loose paper.  
1 - Light air movement, smoke drifts. 5 - Small trees in leaf begin to sway, crested wavelets.  
2 - Wind felt on face, leaves rustle. 6 - Large branches in motion.  
3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

Date: 11 Apr 2000 Survey Period: 1 2 3 4 Route: BBWV Surveyor: E. L. ...

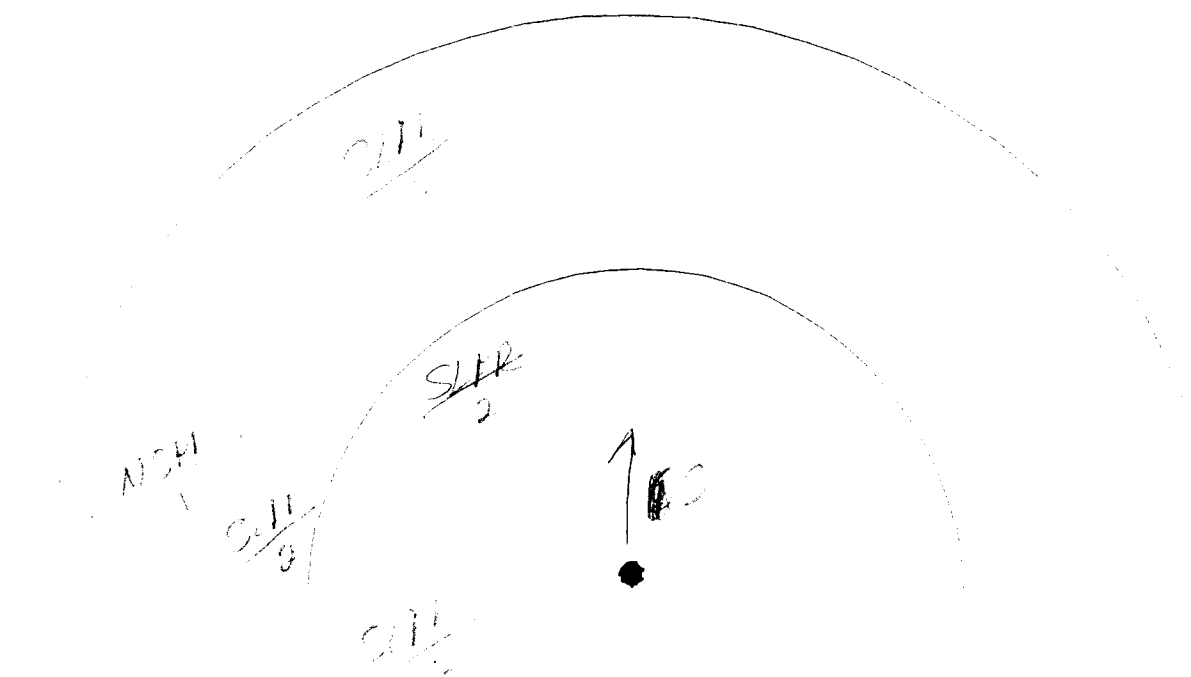
Survey Point Number: Five

### Survey Data

|        | Time                       | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|----------------------------|-------------|----------|------------|---------------|
| Start  | <u>2:41</u><br><u>0841</u> | <u>66.2</u> | <u>2</u> | <u>B5</u>  |               |
| Finish |                            |             |          |            |               |

Comments:

*SLEP all around  
2. This form is also*



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 1 - Light air movement, smoke drifts. 2 - Wind felt on face, leaves rustle. 3 - Gentle breeze, leaves and small twigs in motion. 4 - Small branches move, raises dust and loose paper. 5 - Small trees in leaf begin to sway, crested wavelets. 6 - Large branches in motion. 7 - Unacceptable wind strengths for survey.

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

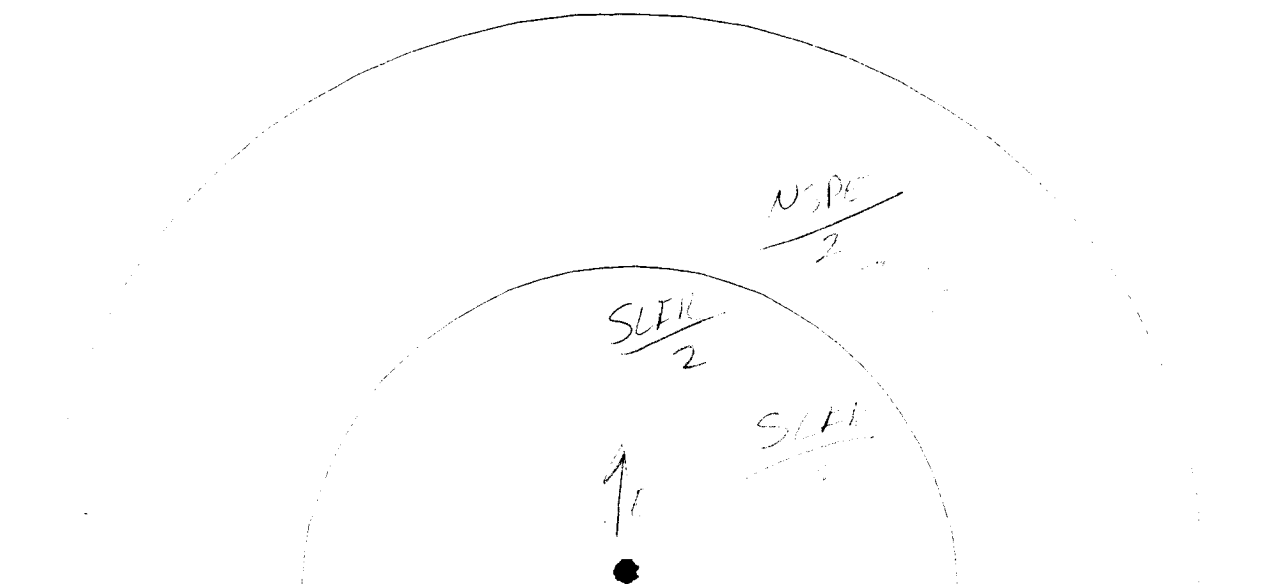
Date: 11 Apr 2004 Survey Period: 1 2 3 4 Route: 35440 Surveyor: B. J. ...

Survey Point Number: 5.12

### Survey Data

|        | Time                        | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|-----------------------------|-------------|----------|------------|---------------|
| Start  | <u>20:52</u><br><u>0852</u> | <u>66.8</u> | <u>2</u> | <u>135</u> |               |
| Finish |                             |             |          |            |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 4 - Small branches move, raises dust and loose paper.  
1 - Light air movement, smoke drifts. 5 - Small trees in leaf begin to sway, crested wavelets.  
2 - Wind felt on face, leaves rustle. 6 - Large branches in motion.  
3 - Gentle breeze, leaves and small twigs in motion. - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

Date: 11 Apr 2001 Survey Period: 1 2 3 4 Route: Blue Surveyor: Schub

Survey Point Number: Seven

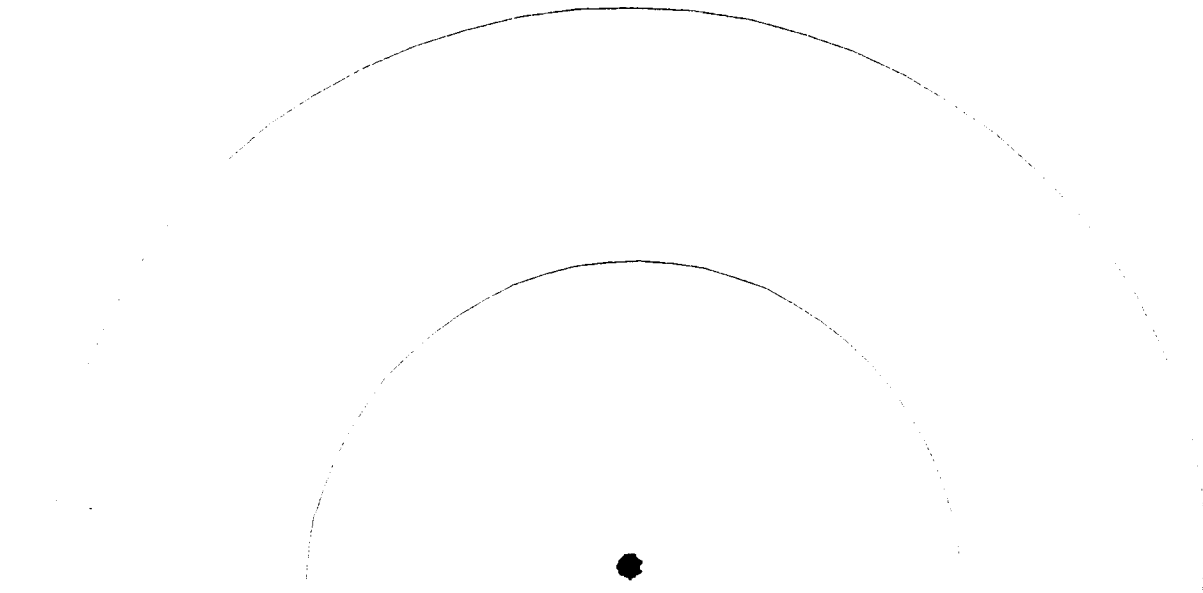
### Survey Data

|        | Time            | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|-----------------|-------------|----------|------------|---------------|
| Start  | <u>08:22:00</u> | <u>67.5</u> | <u>2</u> | <u>B4</u>  |               |
| Finish |                 |             |          |            |               |

Comments:

10/11/01

Green Hills 2.00



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
1 - Light air movement, smoke drifts. \*5 - Small trees in leaf begin to sway, crested wavelets.  
2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.



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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

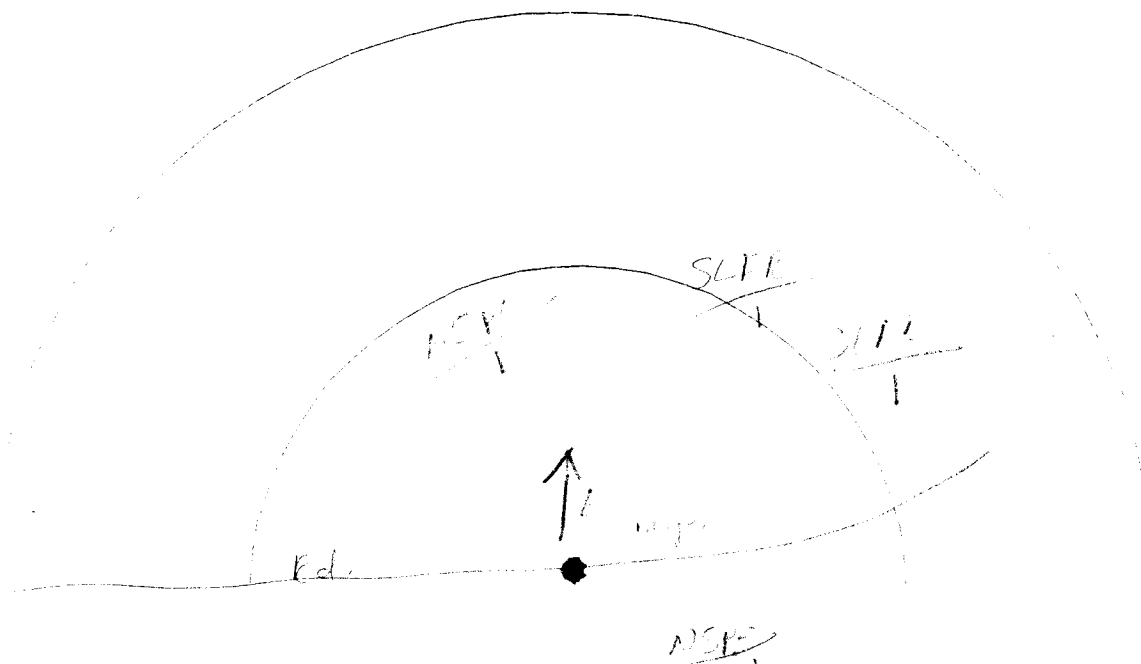
Date: 11 Apr 2004 Survey Period: 1 2 3 4 Route: BBWet Surveyor: Schwal  
Survey Point Number: Eight

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 2100 | 67.5      | 2        | 2          |               |
| Finish |      |           |          |            |               |

Comments:

S. END BRICKHILL



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
1 - Light air movement, smoke drifts \*5 - Small trees in leaf begin to sway, crested wavelets.  
2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

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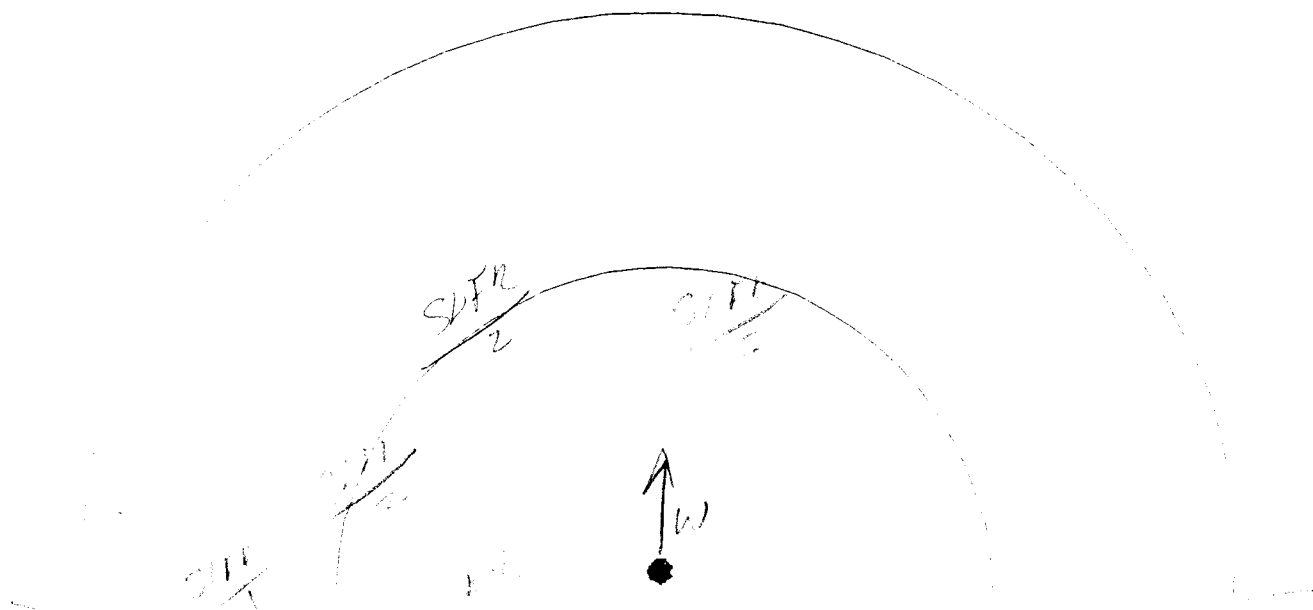
## Anuran Call Count Survey Survey Point Field Map

Date: 11 Apr 2004 Survey Period: (1) 2 3 4 Route: BBNWR Surveyor: P. J. ...  
 Survey Point Number: Nice

### Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 2112 | 66.9      | 2        | B4         |               |
| Finish |      |           |          |            |               |

Comments:



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts. 5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. 6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

Date: 11 Apr 2004 Survey Period: ① 2 3 4 Route: BBNWP Surveyor: 2/1/04

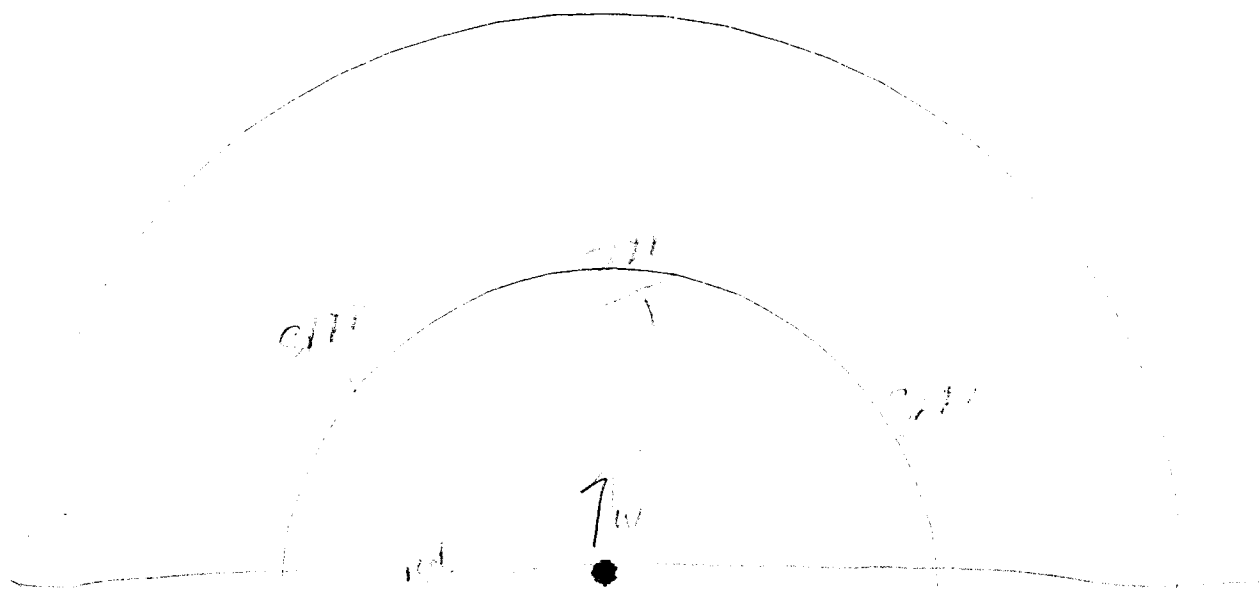
Survey Point Number: TEN

### Survey Data

|        | Time         | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|--------------|-------------|----------|------------|---------------|
| Start  | <u>11:17</u> | <u>66.7</u> | <u>2</u> | <u>B6</u>  |               |
| Finish |              |             |          |            |               |

Comments:

*Most calling observed in the morning.  
Problem/ being in the ocean*



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals)  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts. 5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. 6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey.

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Appendix 7.

## Anuran Call Count Survey Survey Point Field Map

Date: 11 Apr 2000 Survey Period: 1 2 3 4 Route: BBWVH Surveyor: S. Lee

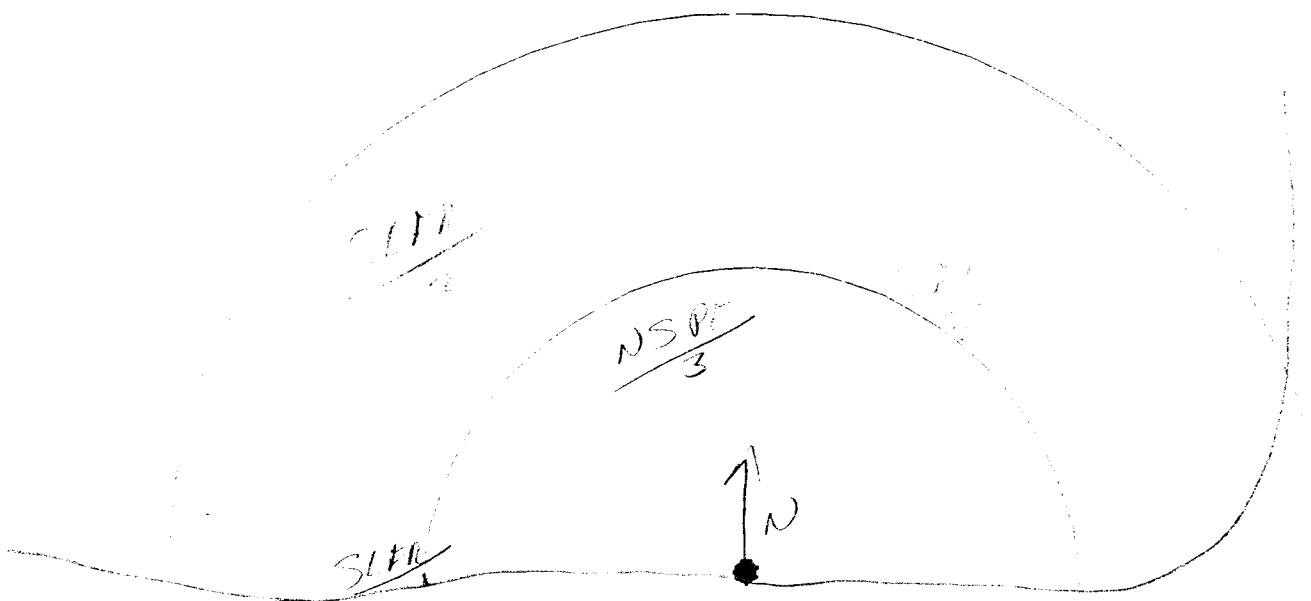
Survey Point Number: E10000

### Survey Data

|        | Time        | Temp (°F)   | Sky Code | Wind Scale | Precipitation |
|--------|-------------|-------------|----------|------------|---------------|
| Start  | <u>2123</u> | <u>67.1</u> | <u>2</u> | <u>1</u>   |               |
| Finish | <u>2</u>    |             |          |            |               |

Comments:

G HOW/1  
(SW)



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically  
1 - Light air movement, smoke drifts  
2 - Wind felt on face, leaves rustle.  
3 - Gentle breeze, leaves and small twigs in motion  
4 - Small branches move, raises dust and loose paper.  
5 - Small trees in leaf begin to sway, crested wavelets.  
6 - Large branches in motion.  
7 - Unacceptable wind strengths for survey.

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Appendix 7.

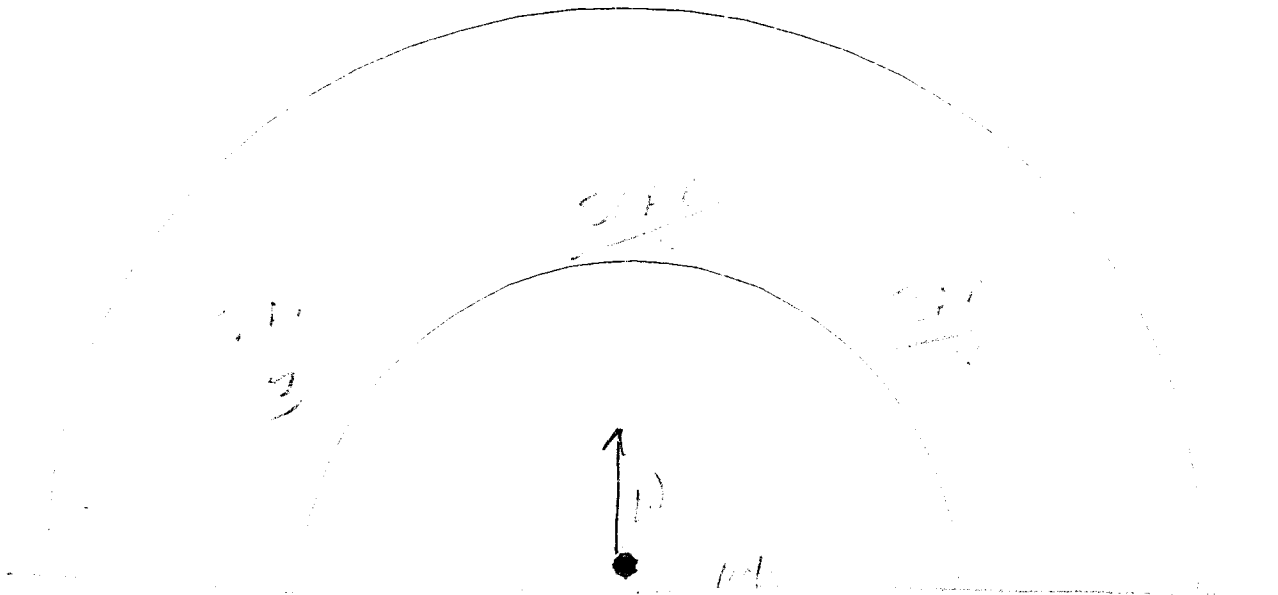
## Anuran Call Count Survey Survey Point Field Map

11 Apr 2001  
 Date: \_\_\_\_\_ Survey Period: 1 2 3 4 Route: BSNWK Surveyor: S. Hunt  
 Survey Point Number: Twelve Imp

Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  | 2130 | 20.0      | 2        | B3         |               |
| Finish |      |           |          |            |               |

Comments.



Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. \*4 - Small branches move, raises dust and loose paper.  
 1 - Light air movement, smoke drifts \*5 - Small trees in leaf begin to sway, crested wavelets.  
 2 - Wind felt on face, leaves rustle. \*6 - Large branches in motion.  
 3 - Gentle breeze, leaves and small twigs in motion. \* - Unacceptable wind strengths for survey

Anuran Call Count Survey IMP

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Appendix 9.

# Anuran Call Count Survey Survey Period Data Sheet

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Date: 8 May 2000 Survey Period: 1 2 3 4Route: BBNWRSurveyor: Don Schaub

## Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation       |
|--------|------|-----------|----------|------------|---------------------|
| Start  | 2030 | 78.5      | 0        | B2         | NONE IN OVER 72 hrs |
| Finish | 2247 | 75.9      | 0        | B3         |                     |

|                            | AS#1        | AS#2 | AS#3 | AS#4 | AS#5 | AS#6 | AS#7 | AS#8 | AS#9 | AS#10 |
|----------------------------|-------------|------|------|------|------|------|------|------|------|-------|
| Start Time                 | 2030        | 2037 | 2043 | 2050 | 2107 | 2114 | 2120 | 2125 | 2140 | 2147  |
| End Time                   |             |      |      |      |      |      |      |      |      |       |
| Temperature (°F)           | 78.5        | 78.1 | 77.7 | 77.0 | 76.7 | 77.4 | 76.7 | 76.8 | 76.1 | 76.1  |
| Sky Code                   | 0           |      |      |      |      |      |      |      |      |       |
| Precipitation              | OVER 72 hrs |      |      |      |      |      |      |      |      |       |
| Species Heard:             |             |      |      |      |      |      |      |      |      |       |
| BUFR                       | 3           | 3    | 3    | 3    | 3    | 3    |      | 3    | 3    | 3     |
| SOTO                       | 2           |      |      | 1    |      |      |      |      |      |       |
| BUFR                       |             | 2(3) |      | 1    | 2(2) | 1    | 1    | 2    |      |       |
| SLFR                       |             | 2(4) | 2    | 2    | 2    | 2    |      | 2    | 2    |       |
| FOTO                       |             |      | 2    | 2    |      |      |      |      | 2    | 1     |
| NSPE                       |             |      |      |      |      | 1    |      | 2    |      |       |
| SQTR                       |             |      |      |      |      | 2    |      |      |      | 1     |
| PENNUM #                   | 5278        | 5279 | 5280 | 5281 | 5282 | 5283 | 5284 | 5285 | 5286 | 5287  |
|                            | ✓           | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓     |
| BAOW (BARRED OWL)          |             |      |      |      |      |      |      |      |      |       |
| WPWI (WHIP-PURR)           |             |      |      |      |      |      |      |      |      |       |
| GHOW (GREAT HORNEDESS OWL) |             |      |      |      |      |      |      |      |      |       |
| OWWI (OWLS)                |             |      |      |      |      |      |      |      |      |       |

Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically. 1 - Light air movement, smoke drifts. 2 - Wind felt on face, leaves rustle. 3 - Gentle breeze, leaves and small twigs in motion. 4 - Small branches move, raises dust and loose paper. 5 - Small trees in leaf begin to sway, crested wavelets. 6 - Large branches in motion. \* - Unacceptable wind strengths for survey.

Anuran Call Count Survey IMP

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Appendix 9.

# Anuran Call Count Survey Survey Period Data Sheet

Date: 8 May 2000 Survey Period: 1 2 3 4Route: BBNWR  
Imp-  
Survey DataSurveyor: Don Schwab Page 2 of 2

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  |      |           |          |            |               |
| Finish |      |           |          |            |               |

AS#11 AS#12 AS#13 Point Data

|                  | 11    | 12   | 13   | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------|-------|------|------|---|---|---|---|---|---|----|
| Start Time       | 2153  | 2159 | 2204 |   |   |   |   |   |   |    |
| End Time         |       |      | 2207 |   |   |   |   |   |   |    |
| Temperature (°F) | 76.1° | 75.9 | 75.9 |   |   |   |   |   |   |    |
| Sky Code         |       |      |      |   |   |   |   |   |   |    |
| Precipitation    |       |      |      |   |   |   |   |   |   |    |
| Species Heard:   |       |      |      |   |   |   |   |   |   |    |
| CRET             | 3     | 3    | 3    |   |   |   |   |   |   |    |
| SOTO             |       |      |      |   |   |   |   |   |   |    |
| BUFR             | 2     | 2    |      |   |   |   |   |   |   |    |
| SLFR             | 2(9)  |      |      |   |   |   |   |   |   |    |
| FOTO             | 1     | 2    |      |   |   |   |   |   |   |    |
| NSBE             |       |      |      |   |   |   |   |   |   |    |
| SQTR             |       |      |      |   |   |   |   |   |   |    |
| CENNUM           | 5288  | 5289 | 5290 |   |   |   |   |   |   |    |
|                  | ✓     | ✓    | ✓    |   |   |   |   |   |   |    |
| BACW             |       |      |      |   |   |   |   |   |   |    |
| WPWI             |       |      |      |   |   |   |   |   |   |    |
| GHOW             |       |      |      |   |   |   |   |   |   |    |
| CWWI             |       |      |      |   |   |   |   |   |   |    |

Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically.  
 1 - Light air movement, smoke drifts.  
 2 - Wind felt on face, leaves rustle.  
 3 - Gentle breeze, leaves and small twigs in motion  
 \*4 - Small branches move, raises dust and loose paper.  
 \*5 - Small trees in leaf begin to sway, crested wavelets.  
 \*6 - Large branches in motion.  
 \* = Unacceptable wind strengths for survey.



Anuran Call Count Survey IMP

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Appendix 9.

# Anuran Call Count Survey Survey Period Data Sheet

Pg 1 of 2

Date: 5 June 2004 Survey Period: 1 2 3 4Route: RB NWR/imp.Surveyor: Schwab + Duran

## Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale       | Precipitation |
|--------|------|-----------|----------|------------------|---------------|
| Start  | 2100 | 70.6      | 2        | <del>22</del> B2 | Rain Today    |
| Finish | 2253 | 72.7      | 2/4      | B0               | Rain          |

|                            | AS#1       | AS#2 | AS#3 | AS#4 | AS#5 | AS#6 | AS#7 |      |      |      |
|----------------------------|------------|------|------|------|------|------|------|------|------|------|
|                            | 1          | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Start Time                 | 2100       | 2111 | 2116 | 2125 | 2139 | 2147 | 2156 | 2204 | 2217 | 2225 |
| End Time                   |            |      |      |      |      |      |      |      |      |      |
| Temperature (°F)           | 70.6       | 72.1 | 71.2 | 70.4 | 71.9 | 71.0 | 72.8 | 72.1 | 71.0 | 71.9 |
| Sky Code                   | 2/4        | 2/4  | 2    | 2/4  | 2    | 2/4  | 2/4  | 2/4  | 2/4  | 2/4  |
| Precipitation              | Rain Today |      |      |      |      |      |      |      |      |      |
| Species Heard:             |            |      |      |      |      |      |      |      |      |      |
| SLFR                       | 2          | 1    |      | 2    | 2    | 2    | 1    | 1    | 1    | 1    |
| BUFR                       |            | 1    |      |      | 1    | 1    |      |      | 1    |      |
| SQTR                       |            | 2    |      |      |      |      |      |      | 1    | 1    |
| GLEF                       |            | 3    | 3    | 3    | 3    | 3    | 3    | 2    | 2    | 2    |
| SCFR                       |            |      |      |      |      |      |      | 1    | 1    |      |
| SOTO                       |            |      |      |      |      |      |      |      | 1    | 1    |
| CENNUM #                   | 5291       | 5292 | 5293 | 5294 | 5295 | 5296 | 5297 | 5298 | 5299 | 5300 |
|                            | ✓          | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    |
|                            |            |      |      |      |      |      |      |      |      |      |
|                            |            |      |      |      |      |      |      |      |      |      |
|                            |            |      |      |      |      |      |      |      |      |      |
| ESOW (EASTERN SCREECH OWL) |            |      |      |      |      |      | 1    |      |      |      |

Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically.  
 1 - Light air movement, smoke drifts.  
 2 - Wind felt on face, leaves rustle.  
 3 - Gentle breeze, leaves and small twigs in motion.  
 \*4 - Small branches move, raises dust and loose paper.  
 \*5 - Small trees in leaf begin to sway, crested wavelets.  
 \*6 - Large branches in motion.  
 \* = Unacceptable wind strengths for survey.



Anuran Call Count Survey IMP

WORKING DRAFT

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Appendix 9.

# Anuran Call Count Survey Survey Period Data Sheet

Date: 5 June 2004 Survey Period: 1 2 3 4Route: BBNWR/npSurveyor: Schwab / Dahan

## Survey Data

|        | Time | Temp (°F) | Sky Code | Wind Scale | Precipitation |
|--------|------|-----------|----------|------------|---------------|
| Start  |      |           |          |            |               |
| Finish |      |           |          |            |               |

## AST#1 AST#2 AST#3 Point Data

|                  | 1     | 2    | 3    | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------|-------|------|------|---|---|---|---|---|---|----|
| Start Time       | 2235  | 2243 | 2250 |   |   |   |   |   |   |    |
| End Time         | 2238  | 2246 | 2253 |   |   |   |   |   |   |    |
| Temperature (°F) | 72.1  | 71.5 | 72.7 |   |   |   |   |   |   |    |
| Sky Code         | 2/4   | 2    | 2/4  |   |   |   |   |   |   |    |
| Precipitation    | Today |      |      |   |   |   |   |   |   |    |
| Species Heard:   |       |      |      |   |   |   |   |   |   |    |
| SLFR             | 2     | 1    | 1    |   |   |   |   |   |   |    |
| BUFR             | 1     |      |      |   |   |   |   |   |   |    |
| SQTR             | 1     | 1    | 1    |   |   |   |   |   |   |    |
| CRET             | 2     | 2    |      |   |   |   |   |   |   |    |
| SCFR             |       |      |      |   |   |   |   |   |   |    |
| SOTO             |       |      |      |   |   |   |   |   |   |    |
| CENNUM#          | 5301  | 5302 | 5303 |   |   |   |   |   |   |    |
|                  | ✓     | ✓    | ✓    |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |
|                  |       |      |      |   |   |   |   |   |   |    |

Call Index Value: 1 - Calls can be counted, no overlapping (actual count of calling individuals).  
 2 - Calls can be distinguished, some overlapping (estimate the number of calling males).  
 3 - Full chorus, calls continuous and overlapping.

Sky Code: 0 - Clear or a few clouds. 1 - Partly cloudy or variable. 2 - Cloudy (broken) or overcast. 3 - Fog 4 - Drizzle 5 - Showers

Wind Scale: 0 - Smoke rises vertically.  
 1 - Light air movement, smoke drifts.  
 2 - Wind felt on face, leaves rustle.  
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 \*4 - Small branches move, raises dust and loose paper.  
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 \*6 - Large branches in motion.  
 \* = Unacceptable wind strengths for survey.